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| APPLICATION NO.                                                                                                  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/527,971                                                                                                       | 10/13/2005  | Arid Vik             | 7439P001            | 7621             |
| 8791 7590 04/28/2009<br>BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP<br>1279 OAKMEAD PARKWAY<br>SUNNYVALE, CA 94085-4040 |             |                      |                     |                  |
| EXAMINER                                                                                                         |             |                      |                     |                  |
| BEST, ZACHARY P                                                                                                  |             |                      |                     |                  |
| ART UNIT                                                                                                         |             | PAPER NUMBER         |                     |                  |
| 1795                                                                                                             |             |                      |                     |                  |
| MAIL DATE                                                                                                        |             | DELIVERY MODE        |                     |                  |
| 04/28/2009                                                                                                       |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/527,971

## Applicant(s)

VIK ET AL.

## Examiner

Zachary Best

## Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 32-40 is/are pending in the application.
- 4a) Of the above claim(s) 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 32-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

**POWER GENERATION APPARATUS COMPRISING FUEL CELL AND  
REFORMING MODULE**

Examiner: Z. Best    S.N. 10/527,971    Art Unit: 1795

**DETAILED ACTION**

1. Applicant's amendment filed January 26, 2009 was received. Claim 1 was amended. Claims 32-40 were newly added. Claims 1 and 32-40 are currently pending examination.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Election/Restrictions***

3. Newly submitted Claim 40 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 1 and 32-39 and Claim 40 are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in the process wherein no hydrogen is recycled back to the anode.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for

prosecution on the merits. Accordingly, Claim 40 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Specification***

4. The objection to the specification is withdrawn because the title was amended.

***Claim Rejections - 35 USC § 102***

5. The rejection under 35 U.S.C. 102(e) of Claim 1 as being anticipated by Keefer et al. is withdrawn because Claim 1 was amended.

***Claim Rejections - 35 USC § 103***

6. Claims 1, 32-34, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keefer et al. (US 2002/0142208 A1).

Regarding Claim 1, Keefer et al. teach an electrical current generating system (abstract) comprising a fuel cell (202) and a reformer (310), wherein the reformer is adapted to reform hydrocarbon fuel (e.g., methane) into hydrogen and other components (par. 31), and to separate said hydrogen from said other components (par. 31), the apparatus being arranged so that said hydrogen is fed from the reformer to the anode of the fuel cell (par. 31), wherein the hydrogen is recycled in the outflow stream (255) of the anode of the fuel cell back to the anode (250), wherein the hydrogen may be tapped off so it is not recycled (pars. 87-88). Keefer et al. further teach that the PSA unit (204) can circulate the anode

exhaust to a combustor (206, par. 88) and other outlets, and the anode inlet receives fuel from the fuel inlet (230) and conduit (250). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the system of Keefer et al. having a controlling arrangement to control the amount of hydrogen recycled because Keefer et al. teach multiple inlet and outlets for the PSA unit (204) that receives anode exhaust (255). Adjustability, where needed is not a patentable advance. *In re Stevens*, 212 F.2d 197, 101 USPQ 284 (CCPA 1954).

Regarding Claim 32, Keefer et al. teach the feed gas (216) is hydrogen (par. 83).

Regarding Claim 33, Keefer et al. teach the removal arrangement removes water from the anode exhaust (par. 49).

Regarding Claim 34, Keefer et al. teach the reforming module separates carbon dioxide (pars. 84-85) and outputs a stream of said carbon dioxide (242).

Regarding Claim 38, Keefer et al. teach the reforming module is thermally integrated with the fuel cell (par. 93).

7. Claims 35-37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keefer et al. as applied to Claims 1, 32-34, and 38 above, and further in view of Yokota (US 2002/0085967 A1).

Regarding Claims 35-36, Keefer et al. teach the electrical current generating system as recited in paragraph 6 above. However, Keefer et al. fail to specifically teach the reforming

module comprises means for absorbing the carbon dioxide by a carbonation reaction. It is noted that metal hydroxides may be used in the PSA (par. 30).

Yokota teaches a process and apparatus for generating hydrogen and carbon dioxide, which may be used for a fuel cell (pars. 2, 7, and 59), wherein carbon dioxide is absorbed in to a form of metal carbonates (par. 63) in order to remove carbon dioxide from the hydrogen stream (par. 39). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the electrical current generating system of Keefer et al. having the apparatus of Yokota wherein carbon dioxide is absorbed in to a form of metal carbonates because Yokota teaches it can remove carbon dioxide from the hydrogen stream. Alternatively, combining prior art elements according to known methods to yield predictable results is obvious. *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, 82 USPQ2d 1385 (2007).

Regarding Claim 37, Yokota teaches a desorption module adapted to allow the release of carbon dioxide (par. 44).

Regarding Claim 39, Yokota teaches the desorption module is thermally integrated with the fuel cell (par. 72).

### ***Response to Arguments***

8. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Best whose telephone number is (571) 270-3963. The examiner can normally be reached on Monday to Thursday, 7:30 - 5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zpb

/Dah-Wci D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795